

## ABSTRACT

[0043] A switch-based network processor is disclosed. The switch-based network processor includes a packet parser, search and modification scheduler that parses a data packet, develops a search for a processing rule associated with the packet, and schedules a modification to be performed on the packet based on the rule. The processor also includes several search resources that each can search simultaneously for a processing rule. Multiple packet modifiers are included to modify several packets simultaneously. A core switch is also provided to switch search requests from the parser to the search resources, to switch search responses from the search resources to the parser, and to switch modification requests and responses between the parser and packet modifiers. The switch-based processor also includes a session state storage device that can be used to allow the processor to be aware of a session.